

In the Claims:

1. (currently amended) A process for coating a three-dimensional ~~eabinet~~ substrate comprising:

supplying a coating material comprised of 100 percent solids material; ~~and~~

atomizing the coating material with a pressurized stream of air; and

applying said coating material that is atomized with air to the three-dimensional ~~eabinet~~ substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional ~~eabinet~~ substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less of said coating material on said three-dimensional substrate.

2. (canceled)

3. (original) The process of claim 1, wherein said uniform thin film coating has a film thickness of 0.001 inches or less.

4. (original) The process of claim 1, wherein said coating material is UV curable.

5. (original) The process of claim 1, wherein said three-dimensional substrate is comprised of wood.

6. (previously presented) The process of claim 1, wherein said three-dimensional substrate is a cabinet door.

7. (currently amended) The process of claim 1, ~~further comprising the step of~~ wherein atomizing said coating material ~~to form~~ forms an atomization stream.
8. (original) The process of claim 7, wherein said atomization stream is temperature controlled.
9. (original) The process of claim 8, wherein said atomization stream is controlled to be between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit.
10. (original) The process of claim 8, wherein said atomization stream is controlled to be between about 110 degrees Fahrenheit and about 140 degrees Fahrenheit.
11. (original) The process of claim 1, further comprising atomizing said coating material to form particles having an average primary particle size in the range of about 25 microns to 50 microns.
12. (original) The process of claim 1, wherein the coating material is applied to said substrate to form a wet build and then dried to form a dry build.
13. (original) The process of claim 12 wherein said wet build and said dry build are substantially equal in film thickness.
14. (original) The process of claim 1, wherein said coating material comprises multiple coatings.

15. (original) The process of claim 14, wherein said coating material comprises a sealer and a topcoat.

16. (original) The process of claim 14, wherein said multiple coatings are applied in separate steps.

17. (original) The process of claim 1 further comprising the step of sanding or scuffing said substrate.

18. (previously presented) The process of claim 1, wherein the coating material is applied to said substrate by a spray gun.

19. (cancelled)

20. (currently amended) The process of claim 1, further comprising the step of adding heat to said coating material before the coating material is atomized with pressurized air.

21. (original) The process of claim 20, wherein said coating material is heated to between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit.

22. (original) The process of claim 20, wherein said coating material is heated to between about 110 degrees Fahrenheit and about 140 degrees Fahrenheit.

23. (canceled)

24. (currently amended) The process of claim ~~23~~ 1 further comprising the step of heating said pressurized air stream.

25. (original) The process of claim 24, wherein said pressurized air stream is heated to between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit.

26. (original) The process of claim 24, wherein said heat is supplied from an external source.

27. (previously presented) The process of claim 24, wherein the coating material is applied to said substrate by a spray gun and said heat source is a component of said spray gun.

28. (previously presented) The process of claim 1, wherein the coating material is applied to said substrate by a spray gun and further comprising the step of measuring the temperature of a discharge stream from said spray gun.

29. (original) The process of claim 28, wherein said temperature is measured in regular intervals.

30. (previously presented) The process of claim 28, further comprising adjusting the temperature of one or more input streams to said gun to maintain said discharge stream temperature within a predetermined range.

31. (original) The process of claim 30 wherein said predetermined range is between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit.

32. (original) The process of claim 1 further comprising moving said substrate along a conveyor means to move the substrate into and out of a coating application region.

33. (original) The process of claim 32, wherein said coating application region is a spray chamber located within an applicator.

34. (original) The process of claim 1, wherein said coating is applied to said substrate within a coating application region.

35. (original) The process of claim 34, wherein said coating application region is a spray chamber located within an applicator.

36. (original) The process of claim 35 further comprising heating the spray chamber to between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit.

37. (original) The process of claim 1 further comprising heating said substrate to between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit prior to application of said coating.

38. (original) The process of claim 37 wherein said substrate is heated by one or more infrared heaters.

39. (currently amended) The process of claim 1 ~~further comprising~~ wherein said atomizing of said coating material to form forms particles and applying said particles are applied to said substrate within a predetermined range for values of particle momentum.

40. (currently amended) A process of coating a three dimensional wood substrate comprising:

supplying a coating material comprised of 100 percent solids material;

atomizing said coating material with pressurized air;

providing a stream of said atomized coating material and ~~heating~~ controlling a temperature of said stream of said atomized coating material to be between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit;

applying said atomized coating material to the three dimensional wood substrate that includes contoured leading and trailing edges while the wood substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute;

providing a uniform thin film coating that is 0.0015 inches thick or less of said coating material on said three dimensional substrate.

41. (original) The process of claim 40 further comprising providing one or more spray guns for dispensing said atomized coating material.

42. (previously presented) The process of claim 41 further comprising providing one or more temperature sensors for sensing the temperature of said atomized coating material as it is dispensed from said one or more spray guns.

43. (currently amended) The process of claim 42, wherein heat is added to an input stream to said one or more spray guns in order to maintain the temperature of said stream of atomized

coating material between 80 degrees Fahrenheit and 160 degrees Fahrenheit ~~within a predetermined temperature range.~~

44. (original) The process of claim 40, wherein said substrate is three-dimensional.

45. (original) The process of claim 40, wherein said substrate is a wooden cabinet component.

46. (currently amended) A process for coating a three-dimensional ~~cabinet~~ substrate comprising:

supplying a coating material to one or more spray guns;

atomizing said coating material with air;

applying said atomized coating material to the three-dimensional ~~cabinet~~ substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to form a uniform wet build of coating material; and

drying said air atomized coating on said three-dimensional substrate to form a uniform dry build of coating material,

wherein said wet build of coating material and said dry build of coating material are substantially equal and each ~~0.001~~ 0.0015 inches or less thick.

47. (original) The process of claim 46 wherein said coating material is comprised of 100 percent solids material.

48. (original) The process of claim 46 wherein said three-dimensional substrate is a wooden cabinet component.

49. (currently amended) A process for coating a wood three-dimensional component comprising:

supplying a coating material comprised of one hundred percent solids material to one or more spray guns;

atomizing said coating material within said one or more spray guns with air;

dispensing said atomized coating material from said one or more spray guns and onto the wood three-dimensional component ~~substrate~~ having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional ~~substrate~~ component is moved at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute;

measuring the temperature of said atomized coating material when dispensed at a location proximate to a dispensing point of said one or more spray guns;

controlling the temperatures of the dispensed atomized coating material such that it is between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit;

wherein ~~the~~ a temperature of one or more air input streams to said one or more guns is changed based on the temperature of said atomized coating material that is dispensed.

50. (original) The process of claim 49, wherein said three-dimensional substrate is a wooden cabinet component.

51. (currently amended) A process for coating a wood three-dimensional substrate comprising:

supplying a coating material to one or more spray guns;

heating the coating material to a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit before the coating is atomized;

atomizing said coating material with air;

applying said atomized coating material to the wood three-dimensional substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional substrate is moved at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to form a uniform wet build of coating material; and

drying said atomized coating on said wood three-dimensional substrate to form a uniform dry build of coating material,

wherein said wet build of coating material and said dry build of coating material have the same thickness that is ~~are each 0.001~~ 0.0015 inches or less thick.

52. (currently amended) A process for coating a ~~wood~~ three-dimensional substrate comprising:

supplying a coating material that is substantially solvent-free; ~~and~~

heating the coating material to a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit before the coating is atomized;

atomizing said coating material with air;

applying said coating material to the wood three-dimensional substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional substrate is moved at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform

thin film coating that is 0.0015 inches thick or less of said coating material on said three-dimensional substrate.

53. (currently amended) A process for coating a three-dimensional ~~cabinet~~ substrate comprising:

supplying a 100 percent solids coating material; ~~and~~

atomizing the 100 percent solids coating material with air that is heated to form a stream of atomized coating material having a temperature between 110 degrees Fahrenheit and 140 degrees Fahrenheit;

applying said coating material to the three-dimensional substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional substrate is moved at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less of said coating material on said three-dimensional substrate;

~~wherein said coating material is substantially recyclable.~~

54. (currently amended) A process for coating a three-dimensional ~~cabinet~~ substrate comprising:

supplying a coating material;

heating the coating material to a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit before the coating is atomized;

atomizing the coating material with air to form a stream of atomized coating material;

controlling a temperature of said stream of said atomized coating material to be between about 80 degrees Fahrenheit and about 160 degrees Fahrenheit ;

applying said coating material to the three-dimensional ~~eabinet~~ substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional substrate is moved at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform wet build of said coating material on said three-dimensional substrate that is less than 0.0015 inches thick;

drying said coating material on said three-dimensional ~~eabinet~~ substrate to form a uniform dry build of coating material

wherein said wet build of coating material and said dry build of coating material on the three-dimensional substrate are substantially the same thickness that is each 0.001-0.0015 inches or less thick.

55. (canceled)

56. (currently amended)A process for coating a wood three-dimensional substrate comprising:

supplying a 100 percent solids coating material at a temperature between 110 degrees Fahrenheit and 140 degrees Fahrenheit; ~~comprising approximately 25 percent or less solvent;~~ and atomizing the coating material with air; and

applying said coating material to the wood three-dimensional substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional substrate is moved at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less of said coating material on said three-dimensional substrate.

57. (canceled)

58. (previously presented) The process of claim 56 wherein the three-dimensional substrate is a door.

59. (canceled)

60. (previously presented) The process of claim 56, wherein said uniform thin film coating has a film thickness of 0.001 inches or less.

61. (currently amended) A process for coating a three-dimensional ~~wood cabinet~~ substrate comprising:

supplying a coating material comprised of 100 percent solids material at a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit; and

atomizing the coating material with air that is heated to produce a stream of atomized 100 percent solids material having a temperature between 110 degrees and 140 degrees Fahrenheit; and

applying said coating material to the three-dimensional wood ~~cabinet~~ substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional substrate is moved at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a thin film coating having a film thickness of 0.0015 inches or less of said coating material on said three-dimensional substrate.

62. (previously presented) The process of claim 61, wherein said uniform thin film coating has a film thickness of 0.001 inches or less.

63. (previously presented)The process of claim 46 wherein said three-dimensional substrate is a cabinet door.

64. (currently amended)A process for coating a three-dimensional substrate comprising:

supplying a coating material comprised of 100 percent solids material at a temperature that is between 110 degrees Fahrenheit and 140 degrees Fahrenheit; and

atomizing the coating material with air that is heated to produce a stream of atomized 100 percent solids material having a temperature between 110 degrees and 140 degrees Fahrenheit; and

applying said coating material to the three-dimensional substrate having contoured leading and trailing edges ~~an intentionally formed decorative surface that includes at least one surface selected from the group consisting of a tapered edge surface, a groove surface, a bevel surface, and a stepped surface~~ while the three-dimensional ~~cabinet~~ substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a thin film coating of said coating material that is 0.0015 inches thick or less on said three-dimensional substrate.

65. (canceled)

66. (new) The process of claim 1 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

67. (new) The process of claim 40 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

68. (new) The process of claim 46 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

69. (new) The process of claim 49 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

70. (new) The process of claim 51 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

71. (new) The process of claim 52 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

72. (new) The process of claim 53 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

73. (new) The process of claim 54 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

74. (new) The process of claim 56 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

75 (new) The process of claim 61 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

76. (new) The process of claim 64 wherein the three-dimensional substrate is a door having an inside profile which forms recessed areas with leading and trailing edges that extend transverse to a direction of movement of the substrate as the substrate is being coated.

77. (new) A process for coating a three-dimensional substrate comprising:

heating a coating material comprised of 100 percent solids material to a temperature between 80 degrees Fahrenheit and 160 degrees Fahrenheit;

heating a pressurized stream of air to a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit;

heating a three-dimensional substrate having contoured leading and trailing edges to a temperature that is between 80 degrees Fahrenheit and 160 degrees Fahrenheit;

atomizing said heated coating material with said heated pressurized stream of air;

applying said coating material that is atomized with said heated air to said heated three-dimensional substrate having while the three-dimensional substrate is moving at a speed that is less than thirty-five feet per minute and greater than twenty feet per minute to provide a uniform thin film coating that is 0.0015 inches thick or less of said coating material on said three-dimensional substrate.